Complete Summary

GUIDELINE TITLE

Asthma.

BIBLIOGRAPHIC SOURCE(S)

Asthma. Philadelphia (PA): Intracorp; 2005. Various p. [27 references]

GUIDELINE STATUS

This is the current release of the guideline.

All Intracorp guidelines are reviewed annually and updated as necessary, but no less frequently than every 2 years. This guideline is effective from April 1, 2005 to April 1, 2007.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Allergic asthma including occupational asthma
- Idiosyncratic asthma
- Acute exacerbation of asthma (status asthmaticus)

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Allergy and Immunology
Family Practice
Internal Medicine
Pediatrics
Pulmonary Medicine

INTENDED USERS

Allied Health Personnel
Health Care Providers
Health Plans
Hospitals
Utilization Management

GUIDELINE OBJECTIVE(S)

To present recommendations for the diagnosis, treatment, and management of asthma that will assist medical management leaders to make appropriate benefit coverage determinations

TARGET POPULATION

Adults and children with asthma

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis/Evaluation

1. Medical and environmental history, physical examination, and assessment of signs and symptoms
2. Diagnostic tests:
    - Peak flow/spirometry
    - Pulse oximetry
    - Arterial blood gasses (ABGs)
    - Bronchoprovocation
    - Skin testing

Management/Treatment

1. Quick-relief medications: short-acting bronchodilator (inhaled beta$_2$-agonist) as needed for symptoms
2. Long-term medications determined by disease severity:
    - No anti-inflammatory agents (mild intermittent asthma)
    - One daily medication: cromolyn or nedocromil or inhaled corticosteroids (ICS) low dose or leukotriene modifiers or theophylline (mild persistent asthma)
    - Daily medication: ICS medium dose or ICS low-medium dose plus long-acting bronchodilator or ICS medium-high dose plus long-acting bronchodilator or ICS medium-high dose plus leukotriene modifiers; referral to a specialist (moderate persistent asthma)

- Daily medication: ICS high dose plus long-acting bronchodilator plus systemic corticosteroids long-term, if needed; referral to a specialist (severe persistent asthma)

3. Patient education regarding self-management skills including taking medications, monitoring symptoms, adjusting the dosage
4. Environmental changes as required

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Searches were performed of the following resources: reviews by independent medical technology assessment vendors (such as the Cochrane Library, HAYES); PubMed; MD Consult; the Centers for Disease Control and Prevention (CDC); the U.S. Food and Drug Administration (FDA); professional society position statements and recommended guidelines; peer reviewed medical and technology publications and journals; medical journals by specialty; National Library of Medicine; Agency for Healthcare Research and Quality; Centers for Medicare and Medicaid Services; and Federal and State Jurisdictional mandates.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Not Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not stated

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Delphi)

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

A draft Clinical Resource Tool (CRT or guideline) is prepared by a primary researcher and presented to the Medical Technology Assessment Committee or the Intracorp Guideline Quality Committee, dependent upon guideline product type.

The Medical Technology Assessment Committee is the governing body for the assessment of emerging and evolving technology. This Committee is comprised of a Medical Technology Assessment Medical Director, the Benefit and Coverage Medical Director, CIGNA Pharmacy, physicians from across the enterprise, the Clinical Resource Unit staff, Legal Department, Operations, and Quality. The Intracorp Guideline Quality Committee is similarly staffed by Senior and Associate Disability Medical Directors.

Revisions are suggested and considered. A vote is taken for acceptance or denial of the CRT.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Diagnostic Confirmation

Subjective Findings

- Dyspnea

- Cough (may be nocturnal, or exercise induced - this may be the only sign in a child)
- Audible wheezing
- "Tight" sensation in chest
- History of persistent respiratory tract infections

Objective Findings

- Tachypnea
- Wheezing
- Decreased breath sounds when severe
- Tachycardia
- Pulsus paradoxicus
- Labored respirations; accessory muscle use
- Increased anteroposterior diameter of the thorax (chronic finding)
- Abnormal spirometry findings:
    - Reversible expiratory airflow obstruction
    - $\geq$12% or greater increase in 1-second forced-expiratory volume (FEV_1) following two puffs of an inhaled beta-2 agonist bronchodilator
- Paradoxical movements of diaphragm - signals impending respiratory failure
- Cyanosis when severe

Diagnostic Tests

- Record detailed medical and environmental history
- Peak flow/spirometry
    - Forced expiratory volume at 1 second (FEV_1) <1 L
    - Peak expiratory flow rate (PEFR) <80 L/min
    - Can demonstrate reversibility and determine the severity
- Pulse oximetry: hypoxemia
- Arterial blood gasses (ABGs): can determine severity
    - Mild - PaO_2 and $PaCO_2$ decreased; pH increased
    - Moderate - PaO_2 decreased; $PaCO_2$ and pH normal
    - Severe - PaO_2 markedly decreased; $PaCO_2$ increased; pH decreased
- Bronchoprovocation if spirometry is normal or near-normal but patient has symptoms
    - Use histamine, methacholine, or suspected offending agent
- Skin testing to assess suspected atopy
    - May serve to identify precipitating allergen(s)
- Sputum analysis generally non-specific
- Chests x-ray is generally non-specific

Differential Diagnosis

- Upper airway obstruction (stridor)
    - Tumor
    - Abscess
    - Epiglottis (medical emergency in children)
    - Nasal polyps
- Chronic bronchitis
- Other upper- and/or lower-airway respiratory infection
    - Rhinitis

    - Post nasal drip
- Laryngeal asthma
- Vocal cord paralysis/dysfunction
- Endobronchial lesions in "focal" asthma with localized wheezing
- Cardiogenic asthma (pulmonary edema - refer to the Intracorp guideline Congestive Heart Failure)
- Other conditions associated with bronchospasm and cough such as pulmonary embolism, carcinoid tumors, chronic obstructive pulmonary disease (see related Intracorp guidelines)
- Aspiration of foreign body
- Reactive airway disorder
- Gastro-esophageal reflux disease (GERD) (see Intracorp guideline for GERD)

Treatment

Treatment Options

Determined by disease classification:

- Mild intermittent
    - Clinical features
        - Day time symptoms = 2 times per week
        - Nocturnal symptoms = 2 times per month
        - FEV_1 or PEV = 80% predicted value
        - PEF variability <20%
    - Long-term medication
        - No anti-inflammatory agents needed
    - Quick relief
        - Short-acting bronchodilator (inhaled beta 2-agonist) as needed for symptoms
        - Intensity of treatment determined by symptom severity
        - Use of short-acting bronchodilator >2 times weekly may indicate the need for long-term control therapy.
- Mild persistent
    - Clinical features
        - Day time symptoms >2 times per week, but < 1 time per day
        - Nocturnal symptoms >2 times per month
        - FEV_1 or PEV = 80% predicted value
        - PEF variability 20% to 30%
    - Long-term medication
        - ONE daily medication
        - Cromolyn or nedocromil OR
        - Inhaled corticosteroid (ICS) low dose OR
        - Leukotriene modifiers (= 2 years old) OR
        - Theophylline (least preferred)
    - Quick relief
        - Short-acting bronchodilator as needed for symptoms
        - Intensity of treatment determined by symptom severity
        - Daily or increasing use of short-acting bronchodilator indicates the need for additional long-term control therapy.
- Moderate persistent
    - Clinical features

        - Daily symptoms
        - Nocturnal symptoms >1 time per week
        - FEV_1 or PEV >60% and <80% predicted value
        - PEF variability >30%
    - Long-term medication
        - Daily medication
        - ICS medium dose OR
        - ICS low-medium dose PLUS long-acting bronchodilator (long-acting inhaled $beta_2$-agonist, sustained release theophylline, or long-acting $beta_2$-agonist tablets)
        - If needed: ICS medium-high does PLUS long-acting bronchodilator OR
        - ICS medium-high dose PLUS leukotriene modifiers AND
        - Consider referral to asthma specialist
    - Quick relief
        - Short-acting bronchodilator as needed for symptoms
        - Intensity of treatment determined by symptom severity
        - Daily or increasing use of short-acting bronchodilator indicates the need for additional long-term control therapy.
- Severe persistent
    - Clinical features
        - Continuous symptoms
        - Frequent nighttime symptoms
        - FEV_1 or PEV = 60% predicted value
        - PEF variability >30%
- Long-term medication
    - Daily medication
        - ICS high dose PLUS
        - Long-acting bronchodilator PLUS
        - Systemic corticosteroids long-term if needed AND
        - Referral to asthma specialist
    - Quick relief
        - Short-acting bronchodilator as needed for symptoms
        - Intensity of treatment determined by symptom severity
        - Daily or increasing use of short-acting bronchodilator indicates the need for additional long-term control therapy.
- Patient education at all levels of care:
    - Education should enlist and encourage family support.
    - Include instructions on self-management skills
    - Ideally integrated with routine ongoing care
    - Patient's ability to take medications, monitor symptoms is a necessary skill of self-management
    - Patients (and parents or guardians of children) with asthma need to know the rationale behind daily long-term and quick-relief medications, how to take medications correctly, and how to adjust the dosage if symptoms occur.
- Environmental changes as required to control allergens/triggers
- Management of asthma in children:
    - Short-acting bronchodilators for quick symptom relief should be administered with long-term medications.
    - Goal of symptom control with most aggressive treatment options first
    - Step down gradually to determine least medication required to maintain symptom control

    - Systemic corticosteroids/other therapies may be needed in acute exacerbation.
    - Identify and control environmental triggers (cigarette smoke, dust mites, pollen, pet dander, etc.).
- (Note: State jurisdictional guidelines may supersede the recommendations of this guideline.)

Duration of Medical Treatment

- Medical - Optimal: 3 day(s), Maximal: 365 day(s)

Additional information regarding primary care visit schedules, referral options, specialty care, and durable medical equipment is provided in the original guideline document.

The original guideline document also provides a list of red flags that may affect disability duration, and return to work goals, including

- Resolving exacerbation (normal peak flow) without hospitalization
- After acute exacerbation
- After hospitalization for acute exacerbation

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate diagnosis, treatment, and management of asthma that assist medical management leaders to make appropriate benefit coverage determinations

POTENTIAL HARMS

Not stated

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Asthma. Philadelphia (PA): Intracorp; 2005. Various p. [27 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1997 (revised 2005)

GUIDELINE DEVELOPER(S)

Intracorp - Public For Profit Organization

SOURCE(S) OF FUNDING

Intracorp

GUIDELINE COMMITTEE

CIGNA Clinical Resources Unit (CRU)
Intracorp Disability Clinical Advisory Team (DCAT)
Medical Technology Assessment Committee (MTAC)
Intracorp Guideline Quality Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Not stated

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

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AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Policies and procedures. Medical Technology Assessment Committee Review Process. Philadelphia (PA): Intracorp; 2004. 4 p.
- Online guideline user trial. Register for Claims Toolbox access at www.intracorp.com.

Licensing information and pricing: Available from Intracorp, 1601 Chestnut Street, TL-09C, Philadelphia, PA 19192; e-mail: lbowman@mail.intracorp.com.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on May 31, 2005. The information was verified by the guideline developer on June 7, 2005.

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